



### SKILLSHEET 13.7

## Rounding angles to the nearest degree

To round an angle to the nearest degree if it is given as a decimal, consider the digit in the tenths place (that is, the first digit after the decimal point):

1. If the digit is less than 5, write down the whole part of a degree and omit the decimal part.
2. If the digit is 5 or more, increase the whole part of a degree by 1 and omit the decimal part.

### WORKED EXAMPLE 1

Round each of the following angles to the nearest degree.

**a**  $34.321^\circ$

**b**  $70.69^\circ$

#### THINK

- a** Consider the digit in the tenth's place. It is 3. Since  $3 < 5$ , omit the decimal part of the degree.
- b** Consider the digit in the tenth's place. It is 6. Since  $6 > 5$ , increase the whole part of the degree by 1 (that is,  $70 + 1 = 71$ ) and omit the decimal part of the degree.

#### WRITE

**a**  $34.321^\circ \approx 34^\circ$

**b**  $70.69^\circ \approx 71^\circ$

If an angle is given in degrees and minutes, or degrees, minutes and seconds, consider the number of minutes:

1. if the number of minutes is under 30, simply omit minutes and seconds
2. if the number of minutes is 30 or above, increase the number of degrees by 1 and omit minutes and seconds.

*Note:* we check whether the number of minutes is under 30 or not because there are 60 minutes in each degree and hence 30 minutes represents exactly half of a degree.

### WORKED EXAMPLE 2

Round each of the following angles to the nearest degree.

**a**  $34^\circ 32' 11''$

**b**  $70^\circ 16'$

#### THINK

- a** Consider the number of minutes. It is 32. Since  $32 > 30$ , increase the number of degrees by 1 (that is,  $34 + 1 = 35$ ) and omit minutes and seconds.
- b** Consider the number of minutes. It is 16. Since  $16 < 30$ , simply omit the minutes.

#### WRITE

**a**  $34^\circ 32' 11'' \approx 35^\circ$

**b**  $70^\circ 16' \approx 70^\circ$

**Try these**

**1** Round each of the following angles to the nearest degree.

- a**  $21.367^\circ \approx \dots\dots$       **b**  $12.592^\circ \approx \dots\dots$       **c**  $80.705^\circ \approx \dots\dots$   
**d**  $126.19^\circ \approx \dots\dots$       **e**  $59.621^\circ \approx \dots\dots$

**2** Round each of the following angles to the nearest degree.

- a**  $74^\circ 42' 41'' \approx \dots\dots$       **b**  $37^\circ 12' 57'' \approx \dots\dots$       **c**  $112^\circ 50' \approx \dots\dots$   
**d**  $250^\circ 19' \approx \dots\dots$       **e**  $4^\circ 37' 15'' \approx \dots\dots$

## SKILLSHEET — ANSWERS

### SKILLSHEET 13.7

#### Rounding angles to the nearest degree

- |                |              |               |
|----------------|--------------|---------------|
| 1 a $21^\circ$ | b $13^\circ$ | c $81^\circ$  |
| d $126^\circ$  | e $60^\circ$ |               |
| 2 a $75^\circ$ | b $37^\circ$ | c $113^\circ$ |
| d $250^\circ$  | e $5^\circ$  |               |